for long-term monitoring of group-housed animals. These tests allow for measuring of exploration patterns, pace and progress of appetitive and reversal learning. To standardize and evaluate the relevant IC tests, we compared valproate treated and control animals from two inbred strains of mice, C57BL/6 and BALB/c. We show that tested mice differ significantly in most of the examined parameters. The obtained results are highly replicable between tested cohorts of subjects, thereby allowing us to infer, that the reported battery of automated behavioral and cognitive tests is a valuable tool in verifying suitability of mouse models of ASD symptoms.

P4.10

DIFFERENCES IN MISMATCH NEGATIVITY (MMN) RESPONSE TO PURE-TONE AND SPEECH SOUNDS IN NORMAL SUBJECTS: AN ADDITIONAL EXPLANATION

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The relation of automatic auditory discrimination, measured with MMN, with the type of stimuli has not been well established in the literature, despite its importance as an electrophysiological measure of central sound representation. In this study, MMN response was elicited by pure-tone and speech binaurally passive auditory oddball paradigm in a group of 8 normal young adult subjects at the same intensity level (75 dB SPL). The frequency difference in pure-tone oddball was 100 Hz (standard = 1 000 Hz; deviant = 1 100 Hz; same duration = 100 ms), in speech oddball (standard /ba/; deviant /pa/; same duration = 175 ms) the Portuguese phonemes are both plosive bi-labial in order to maintain a narrow frequency band. Differences were found across electrode location between speech and pure-tone stimuli. Larger MMN amplitude, duration and higher latency to speech were verified compared to pure-tone in Cz and Fz as well as significance differences in latency and amplitude between mastoids. Results suggest that speech may be processed differently than non-speech; also it may occur in a later stage due to overlapping processes since more neural resources are required to speech processing.

P4.11

SIMULATIONS OF LOCAL FIELD POTENTIALS AND CURRENT SOURCE DENSITY ANALYSIS IN SLICES WITH REALISTIC CONDUCTIVITY DISTRIBUTION

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To test methods of local field potential (LFP) analysis we need realistic ground truth data which demands plausible models of neural activity and of physical properties of the setup, tissue, and the electrodes. To interpret the recordings we often reconstruct the Current Source Density (CSD) from the LFP. In this work we study the effect of realistic conductivity profiles and the slice geometry on (1) computation of LFP generated by cell populations embedded in slice, as would be measured on multi-electrode array (MEA), and (2) current source density (CSD) reconstruction in the slice from such potentials. We show that the method of images approximates solution through finite elements well while being much more efficient computationally. Inclusion of slice properties with homogeneous and uniform conductivity in the slice noticeably modifies the observed activity (LFP) but inhomogeneity and anisotropy do not further change the profile and amplitude of the LFP. Supported with grants: IP2011 030971, N N303 542839, FP7-PEOPLE-2010-ITN 264872, POIG.02.03.00-00-018/08, POIG.02.03.00-00-003/09.

P5. Cognition and behavior

P5.1

THE ROLE OF INTERLEUKIN 6 IN BEHAVIOR OF AGED MICE

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Interleukin 6 (IL-6) is a cytokine playing an important pleiotropic role in the immune system. IL-6 is also involved in stress response, etiology of the age-related diseases and plays a role of mediator between the central nervous system and the immune system. To study effects of IL-6 on behavior during aging we examined aged (13 to 15 months) IL-6 deficient and wild type (WT) mice. Behavior was tested using the open field test, elevated plus maze test and registration of spontaneous activity in the individual home cages for 72 hours. These registrations showed that IL-6 deficient animals were less active than WT mice. The difference was more distinct during the dark phase. Interestingly, in the open field IL-6 deficient mice displayed higher locomotor activity than control WT mice and spent more time in the central part of the arena. In the elevated plus maze IL-6 deficient mice spent more time exploring open arms than WT mice. We conclude that IL-6 deficient aging animals show lower level of anxiety than WT control animals. After tests mice were perfused and brains were cut into 40 μm sections. Brain sections were immunohistochemically labeled for IL-6 and its receptor (IL-6R), also known as CD126. We found that cells immunopositive for both IL-6 and CD126 were present in the hippocampus and other brain structures. Supported by the National Science Center grant No 1577.